The San Antonio Statement, with Åke Bergman

Ashley Ahearn

Brominated and chlorinated flame retardants are widely used in upholstered furniture and foam products. These compounds have been found to accumulate in the bodies of humans , and although more information is needed on health effects, the available toxicity data are troubling. In this podcast, Åke Bergman discusses the San Antonio Statement on Brominated and Chlorinated Flame Retardants, drafted in September 2010, in which an international group of scientists calls for greater awareness of and responsibility for this group of chemicals, including better life-cycle management. Bergman is a professor of environmental chemistry at Stockholm University in Sweden.

AHEARN: It's *The Researcher's Perspective*. I'm Ashley Ahearn.

San Antonio, Texas, is probably best known for great barbecue, its vibrant Tejano culture, and the Alamo.

But from here on out, in some scientific circles anyway, it will be known as the birthplace of the San Antonio Statement.

In September 2010 scientists at the 30th International Symposium on Halogenated Persistent Organic Pollutants met in San Antonio and presented a statement that summed up their concerns about brominated and chlorinated organic flame retardants.[1] You'll find these compounds most commonly in upholstered furniture and foam products—like the cushions of your couch. But they've also been found to escape these products and accumulate in the bodies of humans and animals. As of October nearly 150 scientists from 22 countries had signed on to the statement.

Dr. Åke Bergman co-authored the San Antonio Statement. He's a professor of environmental chemistry at Stockholm University in Sweden.

Dr. Bergman, great to have you with us!

BERGMAN: Thank you very much.

AHEARN: Dr. Bergman, tell me about the statement. What are you calling for?

BERGMAN: Well, we are calling for action on brominated and chlorinated flame retardants.[2] I think this is the most substantial issue right now—that we are not talking about individual groups like PBDEs[3] and some of the other chemicals but actually to act on this [whole] group of chemicals because we know the persistency, bioaccumulation, and toxicity of these chemicals, and we are ready to say, "Well, please act because we have learned the lesson from the past—we will have problems with each one of these chemicals later in life if nothing is done now."

AHEARN: The statement also calls for better disposal, am I right?

BERGMAN: Yeah, you are right. The problem today is that in Sweden we have a recycling of electronics and electrical equipment in a very safe manner, but many countries in Europe and United States and others are exporting electronic material to China, to African countries like Ghana, and you cannot really talk about recycling at these places. I mean, people are doing this in their backyard and in front of the houses under very, very poor conditions, and this is causing environmental problems but [also] of course, health problems.

AHEARN: The statement highlights some of the concerns that the scientific community has about the safety of these chemicals when they come into contact with human beings. Can you talk a little bit about that?

BERGMAN: What we know about several of the brominated flame retardants is that they are acting in a similar way than the other chlorinated compounds are, which is leading to a number of effects—for example, cancer risks; endocrine-disrupting properties of the chemicals; we have reproductive effects of the chemicals; and not the least, the neurodevelopmental effects that they cause, and for the neurodevelopmental we are talking about young children, the newborns, being affected. We know that has happened in the past for children being exposed to high concentrations of PCBs.[4] These brominated compounds are acting in a similar way and are adding on to what we already have in regard of PCBs and DDTs[5] and other organochlorine compounds.

AHEARN: Dr. Bergman, what is fire toxicity, and why is that a concern with these chemicals?

BERGMAN: Well, I think the fire toxicity is a concern in general because when things are burning we have a production of very toxic gases, not the least from polymeric materials but also from wood. But in addition to that, having brominated and chlorinated flame retardants we may add, on the margin, a little more toxicity to the gases, which are, indeed, the cause of deaths in

fires to the major proportion.

AHEARN: Flame retardants are everywhere, they're in all kinds of products that we purchase on a regular basis, but they're not labeled, are they?

BERGMAN: No, and this is really a major concern for many of us. This goes, actually, beyond the use of brominated and chlorinated flame retardants. It's actually that we need to have label[s] on materials and goods, not only chemical products, so we know the content. I mean, it's ridiculous to learn that you have nursing pillows with flame retardants, for example.

AHEARN: Dr. Bergman, if I call you up in five years, what do you hope to tell me about the San Antonio Statement and what it's accomplished?

BERGMAN: Well, I really hope that I can say that we did accomplish something—we were able to transfer the information to policymakers in order to make decisions and at least to bring up a discussion in order to do some management on these kind[s] of chemicals, and this is exactly what we are doing now within the organization International Panel on Chemical Pollution, IPCP. We have a fair number of scientists eager to help in this transfer of knowledge in order to narrow the gap between science and policy. And in five years I would say that we should have basically gotten rid of all the brominated and chlorinated flame retardants.

AHEARN: Dr. Bergman, thanks so much.

BERGMAN: You're welcome.

AHEARN: Dr. Åke Bergman is a professor of environmental chemistry at Stockholm University in Sweden.

And that's *The Researcher's Perspective*. I'm Ashley Ahearn. Thanks for downloading!

References and Notes:

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[1] DiGangi J, et al. San Antonio Statement on brominated and chlorinated flame retardants. Environ Health Perspect 118(12):A516–A518; doi:10.1289/ehp.1003089.

[2] Brominated and chlorinated flame retardants (BFRs and CFRs, respectively) can escape the products in which they are used and end up in house, office, car, and airplane dust; from there they make their way into people, the environment, and wildlife. Moreover, uncontrolled burning, dismantling, and recycling of electronic and electric waste in developing countries results in contamination and formation of highly toxic brominated and chlorinated

dioxins and furans. Since the 1970s, there have been early warnings and periodic reminders about the problematic properties of BFRs and CFRs, but instead of developing safer alternatives, manufacturers have simply adopted different BFRs and CFRs. The San Antonio Statement is a call for attention to this continuing pattern of substitution and represents a plea from the scientific community to consider the impacts of our continued use of these compounds. For more information, see Birnbaum LS, Bergman Å. Brominated and chlorinated flame retardants: the San Antonio Statement. Environ Health Perspect 118(12):A514–A515 (2010); doi:10.1289/ehp.1003088.

[3] Polybrominated diphenyl ethers, or PBDEs, are one class of brominated flame retardants.

[4] Polychlorinated biphenyls, or PCBs, are structurally similar to PBDEs and were once widely used in the electrical and electronics industries for their heat- and flame-resistant properties.

[5] Commercial dichlorodiphenyltrichloroethane, or DDT, is a pesticidal mixture of four closely related compounds.

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